

Bin Yuan Capital All China Strategy - October 2024

Bin Yuan Opinion

“The Mother Machine”

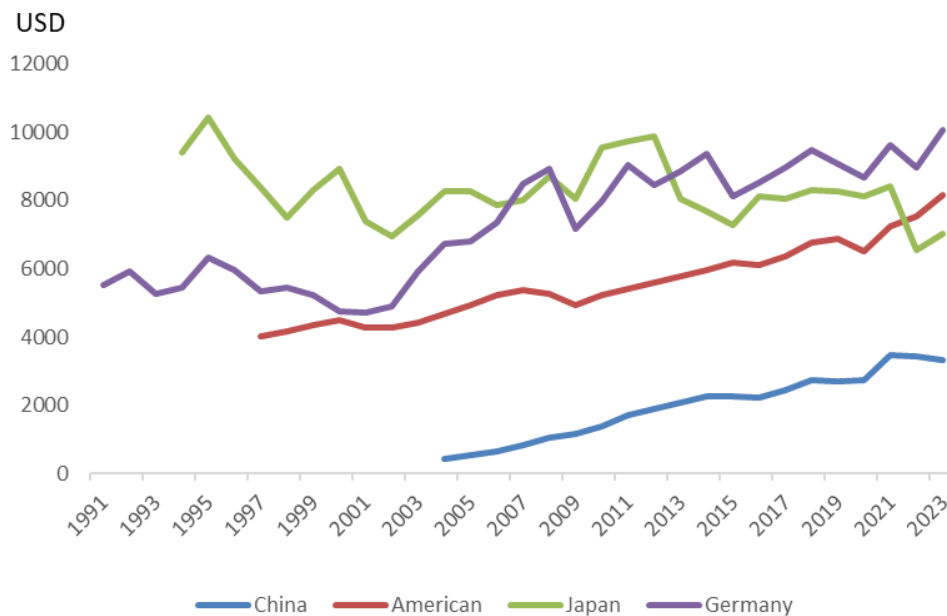
A Crucial Element in the Advancement of China's Manufacturing Industry

Industrial machine tools are aptly nicknamed "the mother of industry" in China, highlighting their crucial role as the foundation of high-end manufacturing. They enable the production of high-quality products and enhance manufacturing efficiency. By developing industrial machine tools, China can strengthen its position in global manufacturing, drive innovation, and meet the growing demands of high value-added industries by producing more precise and complex products. This, in turn, promotes technological progress and economic growth.

Challenges for China's Current Manufacturing Industry

Although China's manufacturing industry topped the world for the 14th consecutive year, its per capita manufacturing value added still has a significant gap behind developed countries around the world. Developed countries often exhibit significantly higher per capita manufacturing value added figures (Chart 1). This disparity indicates that while China has a large manufacturing base in terms of overall volume, there is significant room for improvement in terms of the value generated per individual within the manufacturing sector.

Chart 1. Manufacturing Value Added per Capita of Major Economies



Source: iFind, Bin Yuan Capital



One factor contributing to the lagging per capita figure is the relatively lower level of technology and innovation in some traditional Chinese manufacturing industries. As shown in Table 1, the average gross profit margin of China's traditional manufacturing industry is less than 20%, which limits the long-term growth of the manufacturing value added per capita of China.

Table 1. Relatively Low Gross Margin of Traditional Manufacturing Industries

Traditional manufacturing industries	Gross margin	Localization rate	Dependence on high-end machine tools
Automotive components	20%	>70%	low
Textile and clothing	18%	>95%	low
Steel industry	8%	>85%	low
Building materials	20%	~100%	low
Plastic parts	15%	>90%	low

Source: Bin Yuan Capital

Solution to Advancing towards High-end Manufacturing

China should transition towards high-end manufacturing in order to enhance the value added per capita. As Table 2 shows, high-end manufacturing industries, with gross margins of more than 35%, such as aerospace, precision medical equipment, high-end molds, semiconductor equipment rely heavily on the processing and manufacturing of high-end machine tools, which demonstrates that these **high-end machine tools are the key to high-end manufacturing.** In the context of a limited supply of high-end machine tools from US, Europe or Japan, the independent development of domestically produced high-end machine tools is extremely important for the development of China's high-end manufacturing industry.

By developing and upgrading its industrial machine tool industry, China will not only increase the per capita manufacturing value added but also enhance the competitiveness of Chinese manufacturing in the global market.

Table 2. The Dependence of High value-added Manufacturing Industries on High-end Machine Tools

High value-added manufacturing industries	Market size (Global)	Gross margin	Localization rate	Dependence on high end machine tools
Aerospace components	RMB 400 Bn	35%	<10%	High
Precision medical equipment components	RMB 300 Bn	50%	<35%	High
High-end Mold (Tooling)	RMB 350 Bn	35%	<40%	High
Semiconductor equipment components	RMB 200 Bn	40%	<20%	High
Gas turbine components	RMB 100 Bn	35%	<15%	High

Source: Bin Yuan Capital

Analysis of the Industrial Machine Tool Industry

(1) The trend from low-end to high-end

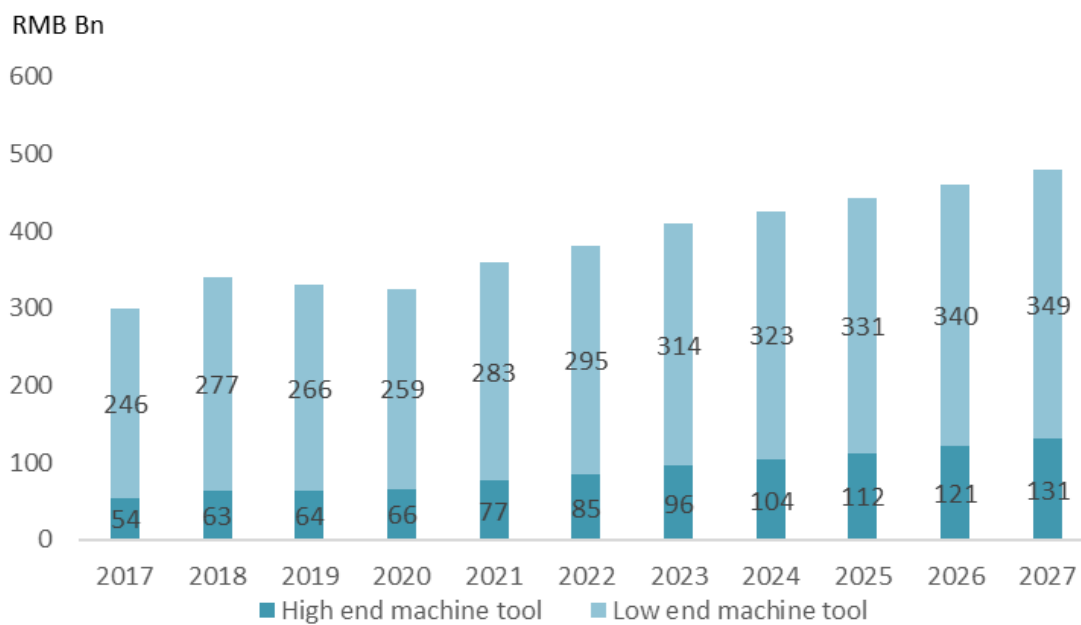
With the rapid development of China's manufacturing industry, the demand for machine tools has been steadily increasing. In 2023, the overall market was more than RMB 400 bn in terms of revenue.



High-end machine tools usually need to meet the following conditions:

1. The positioning accuracy should be within $\pm 1\mu\text{m}$, and the repetitive positioning accuracy should be within $\pm 0.5\mu\text{m}$.
2. They should be capable of realizing multi-axis simultaneous machining (such as five-axis simultaneous machining and above).
3. They should have automatic control functions.

Chart 2. Market Size of Machine Tools in China



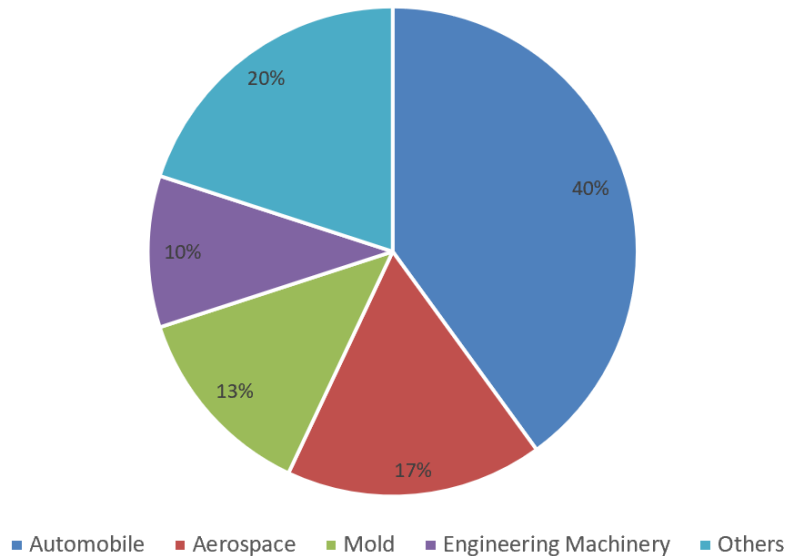
Source: Bin Yuan Capital

The proportion of high-end machine tools has been increasing rapidly. The market size increased from RMB 54 bn in 2018 to RMB 96 bn in 2023, a CAGR of 10%, and is expected to increase to RMB 131 bn by 2028, a CAGR of 8% over the next 4 years.

(2) The advantages of domestic application scenarios

China is a large manufacturing country with a wide range of industries, including automotive, aerospace, electronics, and machinery. These industries all rely on industrial machine tools for production. The continuous expansion of these industries has driven the growth of the machine tool market, especially for high-end machine tools. According to ASKCI, automotive, aerospace and mechanical equipment are the three largest downstream application areas, accounting for 40%, 17%, and 13%, respectively.

Chart 3. Downstream Application Distribution of High-end Machine Tools



Source: Soochow Securities, Bin Yuan Capital

(3) Policy Support to bring additional growth

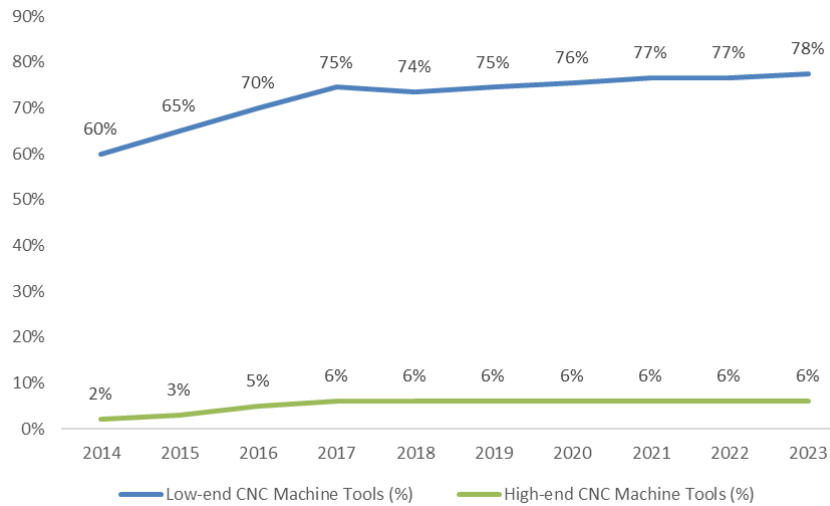
In addition, the Chinese government has introduced policies to support manufacturing and promote the growth of the machine tool market. For example, the Ministry of Finance and the Taxation Administration jointly issued a tax preference policy for certain taxpayers in the industrial machine tool sector. 15% of the payable VAT can be subtracted from the deductible input tax between January 2023 and December 2027 on equipment purchases. The central bank has also set up a RMB 500 billion special re-lending facility to guide financial institutions to support equipment upgrades and technological transformation of the machine tool industry.

(4) Import Substitution trend

The localization rate of China's high-end machine tools is less than 10% (Chart 4). Current export controls may prevent Chinese manufacturers from obtaining certain crucial elements, impeding the upgrading of manufacturing capabilities. Additionally, political biases can result in discriminatory treatment, making it hard to establish stable supply relationships.



Chart 4. Localization Rate of Machine Tools in China



Source: Soochow Securities, Bin Yuan Capital

Given these challenges, developing the domestic industrial machine tool industry is a key priority. By doing so, China can reduce dependence on foreign suppliers, avoid uncertainties and restrictions associated with imports. It also enables greater control over manufacturing technology and innovation, allowing for customization according to domestic industry needs. This is crucial for enhancing China's manufacturing competitiveness and ensuring the long-term development of the manufacturing sector in a complex geopolitical environment.

(5) Value Chain Analysis

Machine tools are complex systems that rely on a variety of upstream components to function effectively. These components play a crucial role in determining the performance, precision, and reliability of the machine tool. Some key components are listed below:

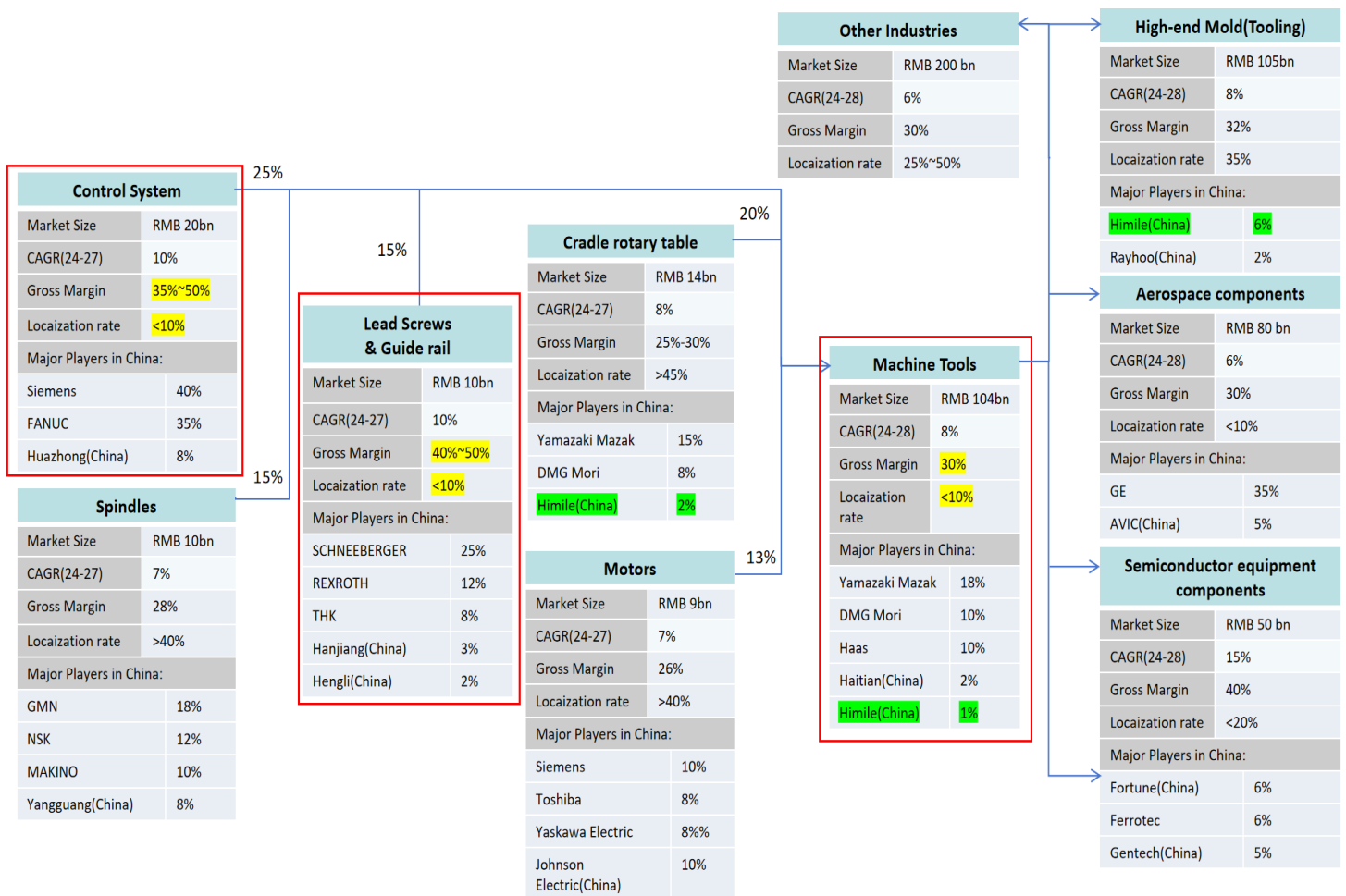
1. **Control Systems.** Control systems act as a machine tool's "brain" by regulation all facets of the tool's operations. Modern control systems are computerized and use algorithms for optimization. A good system ensures accurate tool positioning, spindle speed control, and efficient process management. It offers real-time monitoring and feedback for adjustments. In a CNC (Computer Numerical Control) machine tool, the control system reads the design file, translates commands, and monitors parameters for optimization.
2. **Spindles.** Spindles are crucial for machine tool rotation. They hold and rotate the cutting tool precisely. Their quality impacts machining accuracy. High-quality spindles have advanced bearings to reduce vibration and precise speed control. In a CNC milling machine, a high-speed spindle can speed up material removal and improve surface finish. Higher-speed spindles are used for high-precision applications like aerospace and precision molds.
3. **Lead Screw.** The lead screw is responsible for converting the rotation of the motor into linear motion. It has high-precision threads. Through precise control of the rotation angle of the lead screw, the accurate positioning



of the worktable or tool holder can be achieved. High-quality materials and strict manufacturing processes are used to ensure their accuracy and durability under heavy loads.

4. **Guide rails.** Guideways are used to guide the movement of the moving parts of the machine tool precisely. There are different types such as linear guideways and sliding guideways. They have high-precision surfaces with good wear resistance. Linear guideways offer low friction and high-speed movement capabilities, while sliding guideways provide good load-bearing capacity and stability during heavy-duty machining.
5. **Cradle rotary table.** The cradle rotary table is an important part of a machine tool. It provides rotational movement for workpieces during machining. With high precision, it enables multi-angle processing. Made of quality materials, it ensures stability and accuracy in manufacturing processes.
6. **Motors.** Motors power machine tools, providing torque and speed for movement. There are AC, DC, and servo motors. AC motors are common for general use due to simplicity and cost. DC motors are for precise speed control in some CNC machines. Servo motors are highly precise for high accuracy applications like robotics. Motor power and performance affect cutting capabilities.

Chart 5. Value Chain of the Machine Tool Industry



Source: Bin Yuan Capital



Through the value chain analysis, we conclude that the **control system, lead screws and guide rails, machine tools** which have relatively higher gross margins and low localization rates offer greater investment opportunities.

The large downstream industrial applications in China have created strong demand for high-end machine tools and have spurred many excellent downstream enterprises in China to expand into the research and manufacturing of high-end machine tools through vertical integration. A good example is **Himile Technology**, which used to be considered a leading tire mold manufacturer but now has become an important player in the high-end machine tool industry.

Investment Opportunities in China

(1) Final machine tool segment ---- Himile Technology (002595.SZ)

Himile Technology has nearly 30 years of self-developed experience in machine tools. Their main machine tool products are highly rated in the sector. The company started with a downstream tire mold business, which has a market share of over 30% and should continue to increase its market share. It is also cooperating with GE, Mitsubishi, Siemens and other domestic gas turbine enterprises. The company has developed high-end machine tools through vertical integration. Its CNC machine tools are applied in precision molds, automobile manufacturing, medical, vocational education, 3C, and other industries. The competitiveness of Himile Technology in the industry is continually increasing, providing investment opportunities for investors.

(2) Lead screws and guide rails segment ---- Hengli Hydraulics (601100.SH)

Hengli Hydraulics offers a wide range of products including high-pressure cylinders, high-pressure plunger pumps, hydraulic multi-way valves and other hydraulic components that are widely used in various industries such as construction machinery, shipbuilding, energy and industrial manufacturing. Hengli has established overseas R&D centers, subsidiaries, and factories. Its key project, the Mexico factory, serves the North American market, and its production capacity is planned to achieve revenue of US\$ 400-500million. Hengli is now making significant inroads into the field of lead screws and guide rails, and its products are already well recognized by downstream machine tool customers.

(3) Control system segment ---- Huazhong CNC (300161.SZ)

Huazhong Numerical Control has an independent copyright for its numerical control system. Its five-axis CNC machine tools breaks foreign technical blockades. The servo motors and spindles also have independent IP rights, making it the only enterprise in China with a complete set of core technologies, IP, and independent supporting capabilities.

The Huazhong Numerical Control System has an open and modular architecture based on a general-purpose control computer, reducing costs and improving reliability. It also has a standardized interface and language for better interaction and can meet special requirements. For example, the HNC-848 system is suitable for multi-axis and horizontal machining centers, and the 808D system improves accuracy and efficiency in a certain machining center. Its control system is widely used in manufacturing industries such as aerospace, automotive, and mechanical equipment.



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Summary and Outlook

Upgrading from low-end manufacturing to high-end manufacturing is a critical step for China to enhance the global competitiveness of its manufacturing sector and increase China's value added per capita. This transition is essential for driving economic growth by enabling the production of more sophisticated and higher-value products. Machine tools, as the foundation of manufacturing, will play a vital role in this process.

After analyzing the value chain, we believe that companies that can provide high-end machine tools or related key components will fully benefit from the import substitution trend. **Himile Technology (002595.SZ)**, with its extensive self-developed experience in machine tools, has achieved advanced product recognition. **Hengli Hydraulics (601100.SH)**, which has a wide range of products, is now involved in machine tool components. **Huazhong CNC (300161.SZ)**, which holds an independent copyright for its numerical control system and possesses unique capabilities, is also one of the companies expected to benefit.

Sincerely,

Ping and the Team

November 7, 2024



Bin Yuan on the Road

October 25, 2024



We recently visited Horizon Robotics, a leading global provider of advanced driver-assistance systems (ADAS) and autonomous driving solutions, to discuss the latest developments and trends shaping the ADAS market.

As autonomous driving technology advances, demand for sophisticated ADAS solutions continues to grow. Significant improvements have been observed in system intelligence and reliability, which should benefit technology firms like Horizon Robotics— a provider of AI chips and solutions. The ADAS market is projected to grow at a rate of 35%, outpacing the overall automotive industry, with companies like Horizon Robotics at the forefront of delivering these critical, advanced solutions.

" ADAS technology is a key driver in the automotive industry's evolution, and demand for our advanced solutions is rising." –

IR Director for Horizon Robotics

October 14, 2024



We visited a leading furnishing mall in Hangzhou, near Shanghai, and spoke with store owners and distributors to learn about the effect of the recent policy stimulus like trade-in subsidies.

The mall is one of the largest in Hangzhou, with comprehensive brands and categories. We spoke with the mall manager and store owners and distributors of bathroom sanitary brand Jomoo, mattress brand Sleemon, built-in furniture brand Suofeiya and Oppein, and sofa brand Kuka. We found that store visits significantly improved following the policy, and they told us that orders from customers also increased with shorter time of decision making because of lower prices. Most of the professionals expect that the policy lasts longer and stimulates more demand, especially for top brands.

" This policy will benefit leading brands offering better products in compliance with regulations. The authorities favor these brands and consumers will choose them too when the price gets lower." –Store owner of Suofeiya

October 22, 2024



We visited Miniso Land, the company's IP land store in Shanghai, to gain a better understanding of the company's global brand strategy for future development.

Miniso is a Chinese chain retailer of innovative lifestyle and design-led products, with over 7,000 stores around the world, as of H1 2024. Miniso Land Store is the first initiative by Miniso to upgrade its global strategy to explore its business model with regard to its IP product collections. The store attracts thousands of visitors every day with comprehensive products based on 70 IP images. Monthly sales rocketed to RMB 12 million to top all the 7,000 stores globally. We expect the company to continue to expand its global presence and grow its store sales supported by its good design and operation capabilities.

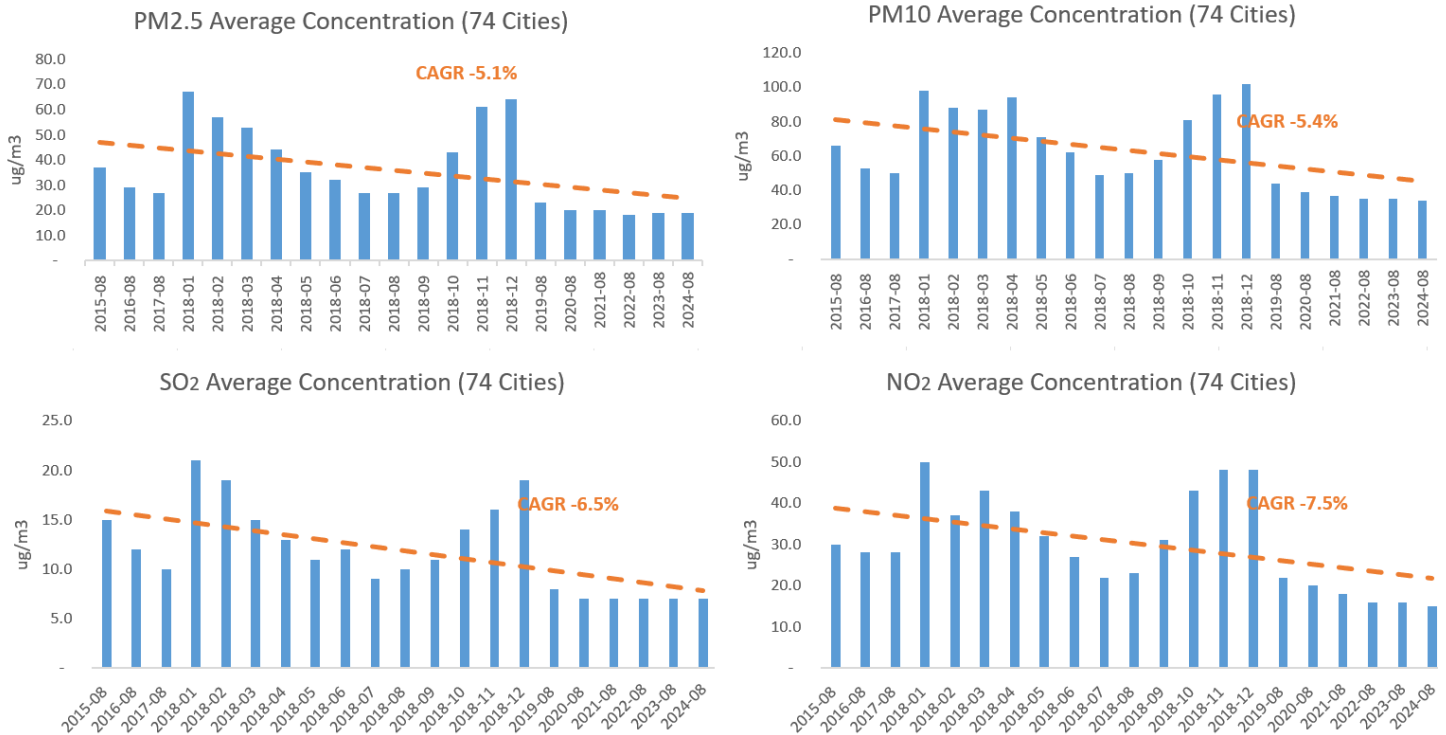
" We are committed to providing better products with quality design for global consumers to enjoy their lives." – Founder and

CEO of Miniso, Guofu Ye

Bin Yuan Environment Tracking

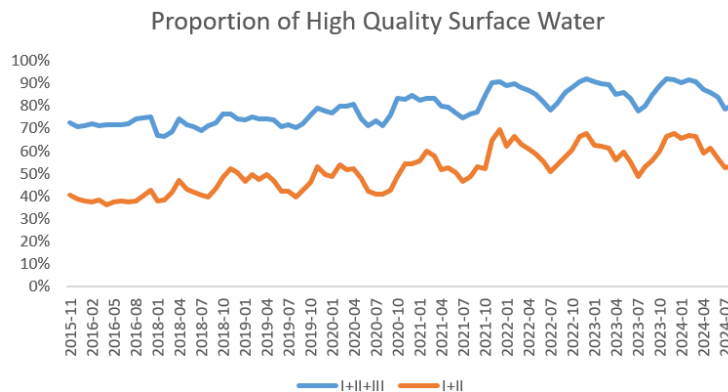
This tracking includes monthly air and water quality data, both showed steady improving trend in the last 5 years. Air pollution concentration dropped due to reduced coal combustion, increased proportion of new energy vehicles, and tightened emission control measures. Water quality improved mainly from the strengthen control of wastewater emissions since 2017.

China air pollutant concentration data June 2016-2024



*PM_{2.5}, PM₁₀ and SO₂ are mainly from fossil fuel combustion, and NO₂ is mainly from vehicle emissions.

The proportion of high-quality water in China data June 2016-2024



*Water quality in China breaks down to 5 levels, with level I being the best and level V being the worst. Level I+II represents water that can be used for drinking purpose. Level I+II+III represents water that can directly contact human body.

*Source: Ministry of Ecological Environment in China.



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